

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

CARNEGIE MELLON UNIVERSITY,	)	
	)	
Plaintiff,	)	
v.	)	Civil Action No. 2:09-cv-00290-NBF
	)	
MARVELL TECHNOLOGY GROUP, LTD.,	)	
and MARVELL SEMICONDUCTOR, INC.,	)	
	)	
Defendants.	)	

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**PLAINTIFF CARNEGIE MELLON UNIVERSITY'S  
BRIEF IN SUPPORT OF ITS MOTION FOR A PERMANENT INJUNCTION,  
POST-JUDGMENT ROYALTIES, AND SUPPLEMENTAL DAMAGES**

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Plaintiff Carnegie Mellon University (“CMU”) respectfully submits this brief in support of its Motion for a Permanent Injunction, Post-Judgment Royalties, and Supplemental Damages (the “Motion”).

## **I. INTRODUCTION**

With its December 26, 2012 verdict, the jury confirmed that Marvell Technology Group, Ltd. (“MTGL”) and Marvell Semiconductor, Inc. (“MSI”) (collectively, “Marvell”) have been infringing CMU’s ‘839 and ‘180 patents for more than a decade. Dkt. 762. Based on this infringement, the jury awarded CMU \$1,169,140,271 in damages, clearly reflecting its conclusion that a reasonable royalty for Marvell’s infringing uses is \$0.50 per MNP-type and NLD-type chip that Marvell sold during the damages period. *Id.* The Court entered judgment on the jury’s verdict on January 14, 2013. Dkt. 769.

Based upon the evidence presented at trial and Marvell’s failure to proffer evidence that it has an alternative to continued infringement, CMU believes that Marvell continues to knowingly infringe the CMU patents and does not intend to change its infringing behavior. Accordingly, CMU requests that the Court issue a permanent injunction against Marvell that enjoins Marvell from infringing, directly or indirectly, claim 4 of the ‘839 patent and claim 2 of the ‘180 patent. This includes, at a minimum, that Marvell should be enjoined from operating in the United States its MNP- and NLD-type chips in infringing modes<sup>1</sup> (including as part of the “sales cycle”).<sup>2</sup>

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<sup>1</sup> Read channel and SoC products that include the MNP and NLD circuits are listed in exhibit P-1912, although the injunction should properly extend to any other Marvell chips that use the MNP or NLD technology. According to Dr. Steven McLaughlin, the current infringing modes for the read channel and SoC products listed in P-1912 are, for the MNP, enablement of the MNP, and for the NLD, non-linear modes 1 through 3. *See* 12/3/2012 at 177-88 (S. McLaughlin testimony).

<sup>2</sup> Dr. Christopher Bajorek testified that Marvell’s sales occur primarily in the United States. *See* 12/4/2012 Tr. at 71:22-72:21 (C. Bajorek testimony). By finding in CMU’s favor on contributory infringement, the jury agreed that Marvell’s sales of the MNP- and NLD-type chips take place in the United States.

Specific details as to the scope of the injunction are set forth in the Proposed Order attached to CMU's Motion.

The factual predicate underlying CMU's request for injunctive relief is the risk that CMU will not be able to collect monetary damages awarded against Marvell, and therefore CMU will be denied any remedy whatsoever for Marvell's future (and even its past) infringement. This type of irreparable harm, which cannot be remedied by the award of yet more uncollectible damages, is well-recognized as an appropriate ground for a permanent injunction. *See, e.g., Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1154-55 (Fed. Cir. 2011). The serious risk that money damages for past and future infringement will not be an adequate remedy in this case is demonstrated in least *three* ways.

**First**, Marvell has organized its business to facilitate efforts to evade payment of money judgments rendered in U.S. courts. MTGL, which CMU believes holds the majority of the defendants' assets available to satisfy the judgment in this case, is incorporated in Bermuda.<sup>3</sup> MTGL's SEC filings expressly warn that ***"a final judgment for the payment of money rendered by any federal or state court in the United States based on civil liability, whether or not based solely on United States federal or state securities laws, would not be automatically enforceable in Bermuda."*** Ex. 1 (MTGL's 10-Q dated 11/29/2012), at 44 (emphasis added).

**Second**, although Marvell presently is flush with cash and short term investments – over \$2 billion – Marvell's board of directors recently authorized the repurchase of billions of dollars of stock and the payment of a quarterly dividend to shareholders. In fact, for several quarters, Marvell has returned more cash to shareholders than the company generated from operations. Clearly, Marvell has the ability to quickly dissipate its liquid assets (including to its founders,

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<sup>3</sup> MTGL, however, has no employees in Bermuda. *See* 12/11/2012 Tr. at 96:18-96:22 (S. Sutardja testimony).

who are significant shareholders, *see* 12/11/2012 Tr. at 146:11-146:17 (S. Sutardja testimony)), if it desires to do so.

**Third**, Marvell's SEC filings omit any reference to the company setting aside reserves to pay CMU's judgment, even though it has been aware of CMU's claimed damages since no later than January 17, 2012 (the date CMU served its damages expert report), and Marvell's Controller and interim Chief Financial Officer recently stated publicly that the company has no intention of reserving funds to pay the judgment, which raises concerns about whether Marvell takes seriously its legal obligations to satisfy any judgment in CMU's favor.

Because CMU's irreparable harm derives from the danger that it will receive no relief whatsoever for Marvell's ongoing willful infringement of its valid patents, the balance of hardships and public interest favor enforcing the strong patent rights of a research institution by enjoining further infringement by an adjudged infringer such as Marvell. If Marvell can evade paying the damages to which CMU is entitled, CMU will be deprived of the significant funds to which it is entitled to support both CMU's existing research capabilities as well as future research opportunities.

In addition to a permanent injunction, CMU requests that the Court set a post-judgment ongoing royalty rate to be applied should Marvell obtain a stay of the permanent injunction, or as an alternative but less effective remedy in the event that the Court declines to grant a permanent injunction. Courts typically set an ongoing royalty rate that is higher than the royalty rate found by the jury. This case should be no different, and CMU requests that the Court set an ongoing royalty rate of between \$0.50 and \$1.50 per MNP- and NLD-type chip sold by Marvell.

The bottom of the range requested by CMU is the appropriate starting point for a post-judgment royalty rate because the jury found that a hypothetical negotiation on the date of

Marvell's first infringement, March 13, 2001, would have resulted in an agreement between CMU and Marvell for a royalty rate of \$0.50 per MNP and NLD chip sold.<sup>4</sup> The evidence upon which the jury's finding is based is equally pertinent in assessing the current value to Marvell of continuing to use CMU's patented methods. That evidence demonstrates, among other things, that CMU's patented methods remain a "must have," "industry standard" technology for Marvell, that virtually all of the read channels Marvell sells today contain this key technology, and that Marvell's profit margins on the sale of these chips continue to grow. Moreover, Marvell's failure to present any evidence at trial of currently available, acceptable, non-infringing alternatives, despite having had the four years since the filing of this lawsuit to attempt to design around the CMU patents, is just as pertinent to the Court's going-forward royalty rate as it was to the jury's conclusions. Accordingly, the jury's \$0.50 royalty rate is the *minimum* rate that should be applied to Marvell's future infringing conduct.

The upper end of the range sought by CMU (\$1.50 per chip) also is appropriate. Any continuing use of CMU's methods by Marvell after a jury found in CMU's favor on infringement and rejected Marvell's invalidity defense is, by definition, willful. Under 35 U.S.C. § 284, the Court has the discretion to enhance damages for willful infringement, and many courts do precisely that when awarding ongoing royalties. Accordingly, CMU requests that the Court increase the ongoing royalty rate from the base of \$0.50 up to \$1.50, as it deems appropriate. Notably, the Court's decision regarding the enhancement of *future* damages should not be

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<sup>4</sup> Although the verdict form did not specify a royalty rate, the jury's damages award of \$1,169,140,271 is clearly based on a royalty of \$0.50 per chip sold by Marvell. Dkt. 763; *see also* 12/10/12 Tr. at 171:5-171:19 (C. Lawton testimony).

influenced by the size of the jury's damages award because the effect of such ongoing royalties can be managed by Marvell in the normal course of its business.<sup>5</sup>

In addition to the foregoing, CMU is entitled to an accounting of and supplemental damages for royalties accruing between July 29, 2012 (Marvell produced sales data only through July 28, 2012) to January 14, 2013 (the date when the Court entered judgment). These supplemental damages should be enhanced consistent with any enhancement of the damages awarded by the jury for past infringement. Prejudgment interest should be awarded on the supplemental damages at the same rate that is applied to the jury's verdict.

### **ARGUMENT**

#### **A. Marvell Should Be Permanently Enjoined From Direct or Indirect Infringement of Claim 4 of the '839 Patent and Claim 2 of the '180 Patent**

CMU requests that the Court enter a permanent injunction barring Marvell from directly or indirectly infringing claim 4 of the '839 patent and claim 2 of the '180 patent as outlined in the Proposed Order appended to its Motion.

##### **1. The Legal Standard for Permanent Injunctions**

Under 35 U.S.C. § 283, courts "may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable." In *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388 (2006), the Supreme Court overturned decades of Federal Circuit precedent that granted a nearly automatic right to post-verdict injunctive relief after a finding of infringement of a valid patent. The Supreme Court held that a plaintiff seeking a permanent injunction in a patent case must satisfy the traditional four-factor test by showing:

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<sup>5</sup> As CMU explains on pages 25 and 26 of its Memorandum in Support of Its Motion for a Finding of Willful Infringement and Enhanced Damages, the significant award of *past* damages may be a factor in the Court's decision regarding enhancement of those damages.

- (1) that it has suffered an irreparable injury;
- (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury;
- (3) that considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and
- (4) that the public interest would not be disserved by a permanent injunction.

*Id.* at 391. “The decision to grant or deny permanent injunctive relief is an act of equitable discretion, reviewable on appeal for abuse of discretion.” *Id.*

The *eBay* Court made clear that the decision whether to grant permanent injunctive relief must be made on a case-by-case basis, that no categorical rules apply, and that university researchers who generally do not practice their inventions are able to satisfy the four-factor test in appropriate cases:

Although the District Court recited the traditional four-factor test . . . , it appeared to adopt certain expansive principles suggesting that injunctive relief could not issue in a broad swath of cases. Most notably, it concluded that a “plaintiff’s willingness to license its patents” and “its lack of commercial activity in practicing the patents” would be sufficient to establish that the patent holder would not suffer irreparable harm if an injunction did not issue. . . . But traditional equitable principles do not permit such broad classifications. ***For example, some patent holders, such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves. Such patent holders may be able to satisfy the traditional four-factor test, and we see no basis for categorically denying them the opportunity to do so.***

*Id.* at 393 (emphasis added, internal citations omitted). Post-*eBay*, courts have in fact issued permanent injunctions in favor of research organizations and other non-practicing entities. *See, e.g., Commonwealth Scientific & Indus. Research Organisation v. Buffalo Tech. Inc.*, 492 F.

Supp. 2d 600 (E.D. Tex. 2007); *Joyal Products, Inc. v. Johnson Electric North America Inc.*, No. 04-5172, 2009 WL 512156 (D.N.J. Feb. 27, 2009).

**2. CMU Is Entitled to Entry of a Permanent Injunction**

**a. *eBay* Factors 1 and 2: CMU Will Suffer Irreparable Harm that Cannot Be Remedied By Damages or an Ongoing Royalty If Marvell Is Permitted to Continue Its Willful Infringement.**

Absent a permanent injunction, CMU would suffer irreparable harm because an award of future royalties is an inadequate remedy given the collectability issues existing in this case. The Federal Circuit has expressly recognized concerns about the ability of a prevailing plaintiff to collect on its judgment as a “factor [that] favors a finding of irreparable harm.” *Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1154-55 (Fed. Cir. 2011); *see also Custom Designs of Nashville, Inc. v. Alsa Corp.*, 727 F. Supp. 2d 719, 726-27 (M.D. Tenn. 2010) (finding irreparable injury where defendant would not be able to satisfy a monetary judgment: “[a]n injury may be ‘irreparable’ if plaintiff cannot get an alternative remedy”); *Retractable Technologies, Inc. v. Occupational & Med. Innovations, Ltd.*, 6:08 CV 120, 2010 WL 3199624, at \*5 (E.D. Tex. Aug. 11, 2010) (first and second *eBay* factors weighed heavily in favor of an injunction in part because of defendant’s inability to pay monetary damages due to its bankruptcy). Of course, the imposition of an ongoing royalty in lieu of a permanent injunction would be an inadequate remedy because it would be an empty gesture if those ongoing royalties are not collectible. Thus, an injunction is the only means of assuring CMU the relief to which it is entitled.

In fact, there is a material risk that CMU will receive little or no compensation for Marvell’s infringement because Marvell has taken affirmative steps to limit its exposure to United States civil liabilities by incorporating MTGL in Bermuda. Based upon discovery in this



case, CMU believes that MTGL holds most of the defendants' assets and may take the position that such assets are not available to satisfy a judgment by this Court. SEC filings by MTGL state (and have stated for years):

We are organized under the laws of Bermuda. As a result, it may not be possible for our shareholders to affect service of process within the United States upon us, or to enforce against us in United States courts judgments based on the civil liability provisions of the securities laws of the United States. There is significant doubt as to whether the courts of Bermuda would recognize or enforce judgments of United States courts obtained against us or our directors or officers based on the civil liability provisions of the securities laws of the United States or any state or hear actions brought in Bermuda against us or those persons based on those laws. ***The United States and Bermuda do not currently have a treaty providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any federal or state court in the United States based on civil liability, whether or not based solely on United States federal or state securities laws, would not be automatically enforceable in Bermuda.***

Ex. 1 (MTGL's 10-Q dated 11/29/2012), at 44 (emphasis added).<sup>6</sup> Even without this express warning, the fact that "defendants are foreign corporations and that there is little assurance that [plaintiff] could collect monetary damages" counsels in favor of a permanent injunction. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, No. 2:04-cv-32, 2007 WL 869576, at \*2 (E.D. Tex. Mar. 21, 2007), vacated and remanded on other grounds, 521 F.3d 1351 (Fed. Cir. 2008).

Marvell's self-imposed obstacle to enforcement is not the only reason that an award of additional monetary relief is inadequate. Marvell's current cash reserves and short-term investments are very substantial – \$2.0 billion, but Marvell has a history of corporate maneuvering that could quickly dissipate the company's liquid assets. *See* Ex. 2 (Marvell 12/14/2012 8-K filing). Specifically:

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<sup>6</sup> "Ex." herein refers to the exhibits attached to the Declaration of Mark G. Knedeisen in Support of Plaintiff Carnegie Mellon University's Motion for a Permanent Injunction, Post-Judgment Royalties, and Supplemental Damages filed contemporaneously herewith.

On August 19, 2010, more than one year after this lawsuit was filed, Marvell instituted a “Share Repurchase Program” that “authorized a program to repurchase up to \$500 million of its outstanding common shares” *See* Ex. 3 (Marvell 8/19/2010 Marvell 8-K filing). Marvell extended its Share Repurchase Program five (5) times in the following amounts: March 3, 2011 (\$500 million), June 28, 2011 (\$500 million), December 14, 2011 (\$500 million), May 17, 2012 (\$500 million), and December 14, 2012 (\$500 million). *See* Exs. 2, 4-7 (Marvell 8-K filings). On December 14, 2012, *during the trial in this case*, Marvell’s board of directors authorized an additional \$500 million for stock repurchases, bringing the total amount authorized under the company’s stock repurchase program to \$3.0 billion. *See* Ex. 2 (Marvell 12/14/2012 8-K filing). As of the end of Marvell’s third fiscal quarter on October 27, 2012, Marvell had made only \$2.1 billion in share repurchases under prior authorizations, leaving \$900 million of authorized funds for further repurchases. *Id.*

- On May 17, 2012, Marvell announced that it would pay its *first* quarterly dividend to shareholders from its current cash and short-term investments. *See* Ex. 7 (Marvell 5/17/2012 Marvell 8-K filing).
- For several quarters, Marvell has made the strategic decision to return more cash to shareholders than what the company has generated from operations. *See* Ex. 8 (C. Lawton summary of Marvell financial information); Ex. 9 (12/27/2012 Barrons.com article).

It is clear that Marvell has the corporate machinery in place to efficiently (and conveniently) reduce its cash and short-term investment holdings during the time that it will take to resolve post-trial motions and any appeals in this case. This risk is particularly high given that Marvell’s small board of directors, which is chaired by Dr. Sehat Sutardja, has repeatedly authorized additional stock repurchases – in \$500 million blocks – and could do so again at any time. *See* Exs. 2, 4-7 (Marvell 8-K filings).

Marvell’s behavior is even more problematic given that Marvell’s SEC filings do not show that Marvell has set aside any reserves to pay the judgment here. *See, e.g.*, Ex. 1 (MTGL’s 10-Q dated 11/29/2012), at 15. Even after the jury rendered its verdict, Marvell’s Controller and interim Chief Financial Officer, Brad Fuller, told investors that the company had no plans to set

aside any reserves. *See* Ex. 10 (Marvell 1/8/2013 presentation at JPMorgan Tech Forum at CES Conference), at 9.

**b. *eBay* Factor 3: The Balance of Hardships Weighs Against Willful Infringer Marvell.**

This is not a case of innocent infringement, where Marvell independently developed the MNP and NLD circuits for its read channels and SoCs and coincidentally infringed CMU's patents. Marvell is a willful infringer. *See* Dkt. 762, at 6-8. Under the circumstances of this case (and even if Marvell's original infringement had not been willful), the equitable balance of the hardships is decidedly favors CMU.

On the one hand, CMU, whose patents are valid and infringed, has a strong interest in obtaining adequate relief from potentially judgment-proof defendants. This interest can be vindicated only by a permanent injunction. On the other hand, Marvell's desire to continue what is clearly egregious willful infringement should be ascribed little or no weight. The Federal Circuit has emphasized that "[o]ne who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected." *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 704 (Fed. Cir. 2008) (citing *Windsurfing Int'l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986)).

**c. *eBay* Factor 4: The Public Interest Will Not Be Disserved By Enjoining Marvell.**

It is beyond dispute that, even post-*eBay*, the public has an interest in a strong patent system in which the rights of patent holders – including the right to exclude – are enforced. *See, e.g., Sanofi-Synthelabo v. Apotex, Inc.*, 470 F.3d 1368, 1383 (Fed. Cir. 2006); *Abbott Labs. v. Andrx Pharms., Inc.*, 452 F.3d 1331, 1348 (Fed. Cir. 2006); *Commonwealth Scientific*, 492 F.

Supp. 2d at 607. This is particularly true when the patents are held by research institutions like CMU:

Although their work may not always have immediate applications, the work of research institutions has produced enormous benefits to society in the form of new products and processes. ***Because the work of research institutions . . . is often fundamental to scientific advancement, it merits strong patent protection.***

Furthermore, the public interest is advanced by encouraging investment by research organizations into future technologies and serves to promote the progress of science and the useful arts.

*Commonwealth Scientific*, 492 F. Supp. 2d at 607 (emphasis added). Here, the invention described in the patents-in-suit was the product of the Data Storage Systems Center (“DSSC”), a research center at CMU built on collaboration with industry and focused on providing real world solutions to real world problems. *See* 11/28/2012 Tr. at 193:2-194:11 (J. Cohon testimony). Unquestionably, the public has a strong interest in protecting CMU’s patent rights. Under the circumstances, where Marvell may seek to evade payment of a money judgment, a permanent injunction is the only adequate means of providing such protection.

There is no countervailing public interest that weighs against enjoining Marvell from its willful infringement. Indeed, only in “rare and limited circumstances” would an injunction implicate a significant public interest such as health or safety. *Commonwealth Scientific*, 492 F. Supp. 2d at 607 (“No [health and safety] interests are implicated here since Buffalo’s WLAN products are not essential for the public health or public welfare.”). Marvell’s products are not linked, in any way, with public health or safety and, in any event, Marvell is not the only supplier of read channels and SoCs and the marketplace for the sale of such chips is fiercely competitive. *See* 12/11/2012 Tr. at 93:14-93:25 (S. Sutardja testimony).

**B. Absent Entry of a Permanent Injunction, or If Such an Injunction Is Stayed, the Court Should Set a Post-Judgment Royalty Rate of at Least \$0.50 and Up to \$1.50**

Consistent with Federal Circuit precedent, CMU approached Marvell to negotiate a post-judgment ongoing royalty. *See Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1315 (Fed. Cir. 2007) (“[T]he district court may wish to allow the parties to negotiate a license amongst themselves regarding future use of a patented invention before imposing an ongoing royalty.”). That approach failed. *See* Ex. 11 (P. McElhinny e-mail to E. DeFranco, dated February 1, 2013, to which Marvel did not respond). Accordingly, to the extent the Court denies CMU’s request for a permanent injunction or stays the entry of such an injunction, CMU requests that the Court now set an appropriate ongoing royalty that will apply to Marvell’s post-judgment sales of read channel and SoC products that perform CMU’s patented methods.

**1. The Legal Standard for Determining the Post-Judgment Ongoing Royalty Rate**

In *Amado v. Microsoft Corp.*, 517 F.3d 1353 (Fed. Cir. 2008), the Federal Circuit indicated that the district court should set a post-judgment ongoing royalty rate where a permanent injunction has been entered, but the injunction has been stayed pending appeal. *Id.* at 1362.<sup>7</sup> In the absence of an injunction or during a stay, the patentee is entitled to receive ongoing royalties that adequately compensate it for the loss of its lawful right to exclude others from profiting from its invention. *See, e.g., Paice LLC v. Toyota Motor Corp.*, 609 F. Supp. 2d 620, 630 (E.D. Tex. 2009). Simply put, the law “must ensure that an adjudged infringer who voluntarily chooses to continue his infringing behavior must adequately compensate the patent holder for using the patent holder’s property.” *Id.* “Anything less would be manifestly unjust and violate the spirit, if not the letter of the U.S. Constitution and the Patent Act.” *Id.*

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<sup>7</sup> Because the issue of whether to award post-judgment ongoing royalties in lieu of a permanent injunction, or while such an injunction is stayed, is equitable in nature, it may be determined by the district court and does not require a trial by jury. *Paice*, 504 F.3d at 1315-16.

In setting the post-judgment ongoing royalty rate, the royalty rate found by the jury is “significant as a starting point” from which to consider whether changes in the parties’ bargaining positions merit a different ongoing royalty rate. *See Fresenius USA, Inc. v. Baxter Int’l, Inc.*, No. C 03–1431 PJH, 2012 WL 761712, at \*11 (N.D. Cal. March 8, 2012) (citing *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1315 (Fed. Cir. 2007)). Courts often conduct a “modified” *Georgia-Pacific* analysis that takes into account the traditional *Georgia-Pacific* factors, but also considers the new legal status quo between the parties: the defendant is an adjudged infringer and any continuing infringement will be willful by definition. *See, e.g., Paice LLC v. Toyota Motor Corp.*, 609 F. Supp. 2d at 624-31. ***While adjudged infringers like Marvell routinely request a post-judgment ongoing royalty rate lower than the pre-judgment rate found by the jury, courts typically set the ongoing rate higher than the jury’s rate.***<sup>8</sup>

A higher ongoing royalty rate is justified in the usual case because “pre-suit and post-judgment acts of infringement are distinct.” *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1317 (Fed. Cir. 2007) (Rader, J., concurring); *see also Amado*, 517 F.3d 1353, 1361-62 (“There is a fundamental difference . . . between a reasonable royalty for pre-verdict infringement and damages for post-verdict infringement.”). Prior to the verdict, the defendant is merely an accused infringer, even if the hypothetical negotiation upon which the award for past infringement is based expressly assumes the patents-in-suit are valid and infringed. Once the

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<sup>8</sup> *See, e.g., Boston Scientific Corp. v. Cordis Corp.*, 838 F. Supp. 2d 259, 276 (D. Del. 2012) (“The court declines to allow Cordis, an adjudicated willful infringer, to effectively owe less for its post-verdict infringement than the jury found for its pre-verdict infringement under the circumstances,” and sets a 32% ongoing royalty when the jury’s verdict was based on a 2.95% royalty rate); *Mondis Tech. Ltd. v. Chimei InnoLux Corp.*, 822 F. Supp. 2d 639, 646- (E.D. Tex. 2011) (awarding an ongoing royalty rate higher than the jury’s because the commercial success following the hypothetical negotiation date justified increasing the rate from 0.5% to 0.75%, and further enhancing it to 1.5%, since ongoing infringement would be willful); *Joyal Prods., Inc. v. Johnson Elec. N. America, Inc.*, Civ. No. 04–5172, 2009 WL 512156, \*13 (D.N.J. Feb. 27, 2009) (26% post-verdict royalty rate representing net operating profit was reasonable, contrasted with 8% rate found by the jury”); *Creative Internet Adver. v. Yahoo!*, 674 F. Supp. 2d 847, 861 (E.D. Tex. 2009) (where jury awarded 20% royalty for the original infringement, ongoing royalty of 23% was proper to account for the changed circumstances and infringer’s decision to continue infringing).

jury has actually rendered its verdict and found the patents valid and infringed, the parties' legal relationship changes. The defendant is now an adjudged infringer and any continued infringement will be willful. Thus, the plaintiff's bargaining position is considerably strengthened in the hypothetical post-verdict negotiation of an ongoing royalty rate because the plaintiff could bring another lawsuit in which the defendant would be collaterally estopped from asserting any defenses and a finding of willful infringement would be virtually guaranteed. "[T]he Court must consider the change in the legal relationship between the parties to avoid incentivizing defendants to fight each patent case to the bitter end because without consideration of the changed legal status, there is essentially no downside to losing."<sup>9</sup> *Fractus, S.A. v. Samsung Electronics Co.*, No. 6:09-CV-203, 2012 WL 2505741, at \*45 (E.D. Tex. June 28, 2012).

**2. The Ongoing Royalty Rate Should Be Set at a Base of \$0.50 and Enhanced up to \$1.50, as the Court Deems Appropriate, Based on the Willful Nature of Marvell's Continued Infringement**

After hearing extensive evidence from both CMU and Marvell, the jury decided that a hypothetical negotiation occurring on the date of Marvell's first infringement – March 13, 2001 – would have resulted in an agreement by Marvell to pay CMU a royalty of \$0.50 per chip sold with the MNP or NLD technology. This royalty rate was applied by the jury after it considered all of the following:

- The MNP and NLD technology was an extremely valuable, "must have" component of Marvell's chips. *See* 12/4/12 Tr. at 73:11-73:24; 117:3-133:13; 136:23-137:7; 140:16-140:24 (C. Bajorek testimony). The addition of this technology to Marvell's chips in the early 2000s was not just important to Marvell's ability to compete for the sale of read channels and SoCs, it was a matter of "life or death," because Marvell's chips had fallen far behind the competition on the ever critical signal to noise ratio. *Id.* at 73:11-73:24; 117:3-

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<sup>9</sup> In *University of Pittsburgh v. Varian Med. Systems*, No. 08cv1307, 2012 WL 1436569 (W.D. Pa. Apr. 25, 2012), the court failed to account for this important change in circumstances. *Id.* at \*11.

133:13. Thus, without the infringing MNP and NLD technology, Marvell never would have had the substantial profits that it has enjoyed over the past decade. *Id.* at 111:10-111:17 (C. Bajorek testimony); 12/11/2012 Tr. at 120:14-122:25 (S. Sutardja testimony) (discussing 2008 e-mail – P-703 – announcing Z. Wu’s promotion that singled out MNP as one of two technologies that “helped firmly establish Marvell as the market leader in the HDD IC business”).

- The MNP and NLD technology remains “must have” for Marvell today for at least two reasons. First, beginning in approximately 2005, the technology became industry standard. Second, the technology has only become more valuable to customers – and, by extension, Marvell – because the hard drives in which Marvell’s chips are installed are increasingly dominated by media noise. *See* 12/4/12 Tr. at 108:21-109:23; 111:10-117:11 (C. Bajorek testimony); P-Demo 8, at 2; 12/3/2012 Tr. at 201:4-201:22 (S. McLaughlin testimony); 12/12/2012 Tr. at 119:19-119:25 (Z. Wu testimony).
- Ninety-three percent of all of the read channel and SoC products sold by Marvell from February 2001 through July 28, 2012 have included the MNP or NLD circuits. *See* 12/7/2012 Tr. at 180:5-180:10 (C. Lawton testimony). There is no reason to doubt that nearly all of the chips sold by Marvell from July 29, 2012 to present – a time period for which Marvell has not yet produced sales data – also contained the MNP or NLD.
- Marvell’s read channels and SoC products containing CMU’s patented technology continue to be a major commercial success. Marvell currently has a 60 percent share of the market for read channel and SoCs for hard drives. 12/11/2012 Tr. at 121:19-122:25 (S. Sutardja testimony).
- Marvell did not present any evidence at trial of currently available, acceptable, non-infringing alternatives to CMU’s patented technology, and there is no evidence that Marvell intends to develop and sell read channel or SoC products in the future that do not include the MNP or NLD circuits. *See* P-Demo 8, at 31.
- Marvell’s profit margins on read channel and SoC products containing CMU’s patented technology have increased over time. *See* 12/10/2012 at 106:11-107:20 (C. Lawton testimony); P-Demo 16, at 6.

The evidence presented by CMU and evidentiary gaps in Marvell’s case are equally pertinent in assessing *the current value to Marvell* of its continued use of CMU’s patented methods.<sup>10</sup> Marvell would have gone out of business years ago and it never would have become

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<sup>10</sup> *See Cummins-Allison Corp. v. SBM Co.*, 584 F. Supp. 2d 916, 919 (E.D. Tex. 2008) (“Calculating a future royalty rate should be little different than opining on the rate the parties would have agreed upon at the hypothetical negotiation. Naturally, a successful Plaintiff wants to argue that ‘everything has changed.’ *This conveniently*



the “market leader” for read channels and SoCs had it not willfully infringed CMU’s patents. 12/4/12 Tr. at 73:11-73:24; 117:3-133:13; 136:23-137:7; 140:16-140:24 (C. Bajorek testimony); P-703. This fact alone should suffice for the Court to set an ongoing royalty rate of at least \$0.50.

Imposing the same \$0.50 rate applied by the jury, however, does not appropriately recognize that Marvell’s ongoing infringement is willful. *See, e.g., Mondis Technology Ltd. v. Chimei InnoLux Corp.*, 822 F. Supp. 2d 639, 652-53 (E.D. Tex. 2011) (finding that defendant’s post-verdict infringement would be willful and, based on this willfulness, imposing an enhanced ongoing royalty rate of 1.5%, which was double the jury’s reasonable royalty rate of 0.75%). Accordingly, CMU requests that the Court increase the ongoing royalty rate from the base of \$0.50 up to \$1.50, as the Court deems appropriate, based on the willful nature of Marvell’s continuing infringement. *See, e.g., Affinity Labs of Texas, LLC v. BMW North America, LLC*, 783 F. Supp. 2d 891, 901-05 (E.D. Tex. 2011) (enhancing ongoing royalty based on willful nature of continued infringement); 35 U.S.C. § 284 (allowing court to enhance damages for willful infringement). While certain cases suggest that enhancement of the jury’s verdict *may* be constrained by the size of the damages award (particularly here),<sup>11</sup> such constraints are far less relevant, if at all, with respect to the ongoing royalty rate because the cost of the royalty can be managed on an ongoing basis within the normal course of Marvell’s business.

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*ignores the fact that even a minimally competent damages expert will have included in pre-trial calculations every advantageous change in profits, sales, and other conditions that occurred prior to trial under the ‘book of wisdom’ rubric.”* (emphasis added)).

<sup>11</sup> *See* CMU’s Memorandum in Support of Its Motion for a Finding of Willful Infringement and Enhanced Damages, at 25-26.

**3. The Court Should Order Marvell to Provide an Accounting and Pay Ongoing Royalties Quarterly During Any Period In Which It Is Not Enjoined.**

The Court has discretion to determine the mechanics and timing of payment of any post-judgment ongoing royalties. CMU requests that the Court order Marvell to:

- pay all ongoing royalties due to CMU quarterly, with payments made in U.S. dollars and according to CMU's payment instructions within fourteen (14) days of the end of each quarter; with the first payment accounting for any unpaid royalties from the date of entry of the judgment, January, 14, 2013, forward; and
- provide a statement to CMU, under the penalty of perjury, concurrent with each quarterly payment, that identifies the products on which a royalty is being paid, the number of units sold, and the calculation of the total royalty amount.

The Court also should order that CMU has the right to audit Marvell's sales information on a periodic basis.

**C. CMU Is Entitled to an Accounting of and Supplemental Damages for Royalties Accrued During the Period for Which Marvell Has Provided No Sales Records**

The jury's damages award was limited to the period from March 6, 2003 through July 28, 2012. *See* 12/7/2012 Tr. at 60:16-61:20 (C. Lawton testimony). This is because Marvell has yet to produce sales data beyond July 28, 2012, the last day for which Marvell provided updated information pursuant to the Court's pre-trial orders. Thus, in addition to a permanent injunction and the setting of a post-judgment ongoing royalty rate, CMU is entitled to an accounting of and supplemental damages for Marvell's sales of infringing chips from July 29, 2012 to January 14, 2013, the date that the Court entered judgment on the jury's verdict. *See Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1212 (Fed. Cir. 2010) (supplemental damages are properly awarded on infringing sales that jury did not consider and that preceded entry of injunction to ensure that patentee is "fully compensated"); *see also Hynix Semiconductor, Inc. v. Rambus*, 609 F. Supp. 2d 951, 960-61 (N.D. Cal. 2009) ("Permitting recovery of . . . supplemental damages

[for the period between the jury's verdict and the judgment] serves section 284's expressed interest in providing damages 'adequate to compensate for infringement.'"); *Aero Products Int'l, Inc. v. Intex Recreation Corp.*, No. 02 C 2590, 2005 WL 1498667, at \*1-\*2 (N.D. Ill. June 9, 2005) (awarding damages for infringing sales after those considered by the jury and before entry of injunction). The same \$0.50 per chip royalty rate applied by the jury to earlier sales should apply to sales prior to entry of judgment on January 14, 2013, whereas the Court's ongoing royalty rate should apply to sales from that date forward.

If the Court finds that enhancement of the damages awarded by the jury is warranted, CMU's supplemental damages for Marvell's sales of infringing read channels and SoCs from July 29, 2012 to January 14, 2013 should be enhanced based on the same multiplier that is applied to the verdict. Moreover, CMU should be awarded prejudgment interest on its supplemental damages at a rate equal to that applied to the jury's damages award.

## **II. CONCLUSION**

For the foregoing reasons, CMU respectfully requests that the Court grant its Motion and enter the Proposed Order attached to its Motion, which generally would:

- (1) permanently enjoin Marvell as to all continued uses of the methods of claim 4 of the '839 patent and claim 2 of the '180 patent in the United States, including but not limited to (i) operating in the United States its MNP- and NLD-type chips in infringing modes (including as part of the "sales cycle"), (ii) using the five accused simulators, and (iii) selling or offering for sale in the United States MNP- and NLD-type chips that are used in the United States in an infringing way;
- (2) set a post-judgment ongoing royalty rate of between \$0.50 and \$1.50 per MNP-type and NLD-type chip sold and establish certain terms relating to the payment of royalties; and
- (3) award CMU supplemental damages, appropriately enhanced, and prejudgment interest on those damages, for the period from July 29, 2012 to January 14, 2013.

Respectfully submitted,

Dated: February 11, 2013

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**CERTIFICATE OF SERVICE**

I hereby certify that on February 11, 2013 the foregoing was filed electronically. Notice of this filing will be sent to all parties by operation of the Court's electronic filing system.

Parties may access this filing through the Court's system.

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